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ON *UPOGEBIA NARUTENSIS*, A NEW THALASSINID
(DECAPODA, CRUSTACEA), FROM JAPAN

With 1 Text-figure and 1 Plate

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アナジャコ属の1新種, ナルトアナジャコ *U. narutensis* について

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Abstract: *Upogebia narutensis* sp. nov. is the fourth upogebid species found in the Inland-Sea, Japan. This species is closest to *U. spinifrons* from Australia.

Introduction

After describing a single specimen of the present species from Naruto, Tokushima Prefecture, as *Upogebia spinifrons* (HASWELL, 1882) (Crustaceana 47(2): 209-214, 3 figs.), I was able to collect further specimens of both males and females, including ovigerous ones, in the same locality where the first specimen was found. The species is rare, and the specimens were found in burrows 0.40 m deep.

Mr. Koji MIZUTA of Hiroshima University also found the present species and observed that it was living with *U. major* at a frequency of 2-3 per 60-70 specimens of *U. major* (litt.: MIZUTA, date 15.8.83). He was kind enough to send me 10 individuals for study.

As closely related to *U. spinifrons*, the Japanese specimens are compared with the Australian ones, and are defined as a new species, *U. narutensis*.

This is the fourth species of *Upogebia* reported from the Inland-Sea, Japan, following *U. major* (DE HAAN, 1841), *U. yokoyai* MAKAROV, 1938 and *U. issaeffi* (BALSS, 1913)

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(K. SAKAI, 1968: 47; 1982: 61, 64). Actually, NAKAZAWA (1927: 1038, fig. 1998) reported another species, *U. isodactyla* ORTMANN, 1891 found in the same locality, but this record is still questionable.

The following abbreviations are used: AM P=Australian Museum, Sydney; BLT=Tokushima Biological Laboratory, Shikoku Women's University, Japan; MNB=Museum für Naturkunde an der Humboldt-Universität zu Berlin; c.l.=carapace length including rostrum; t.l.=total length from the tip of the rostrum to the posterior margin of the telson.

Family Upogebiidae BORRADAILE, 1903

Upogebia spinifrons (HASWELL, 1882)

Upogebia spinifrons HASWELL, 1882: 762.—HASWELL, 1882a: 165, pl. 3, fig. 5.

Upogebia (*Upogebia*) *spinifrons*, DE MAN, 1927: 53, pl. 6, figs. 20-20e.—POORE & GRIFFIN, 1979: 305, text-figs. 53-54.—K. SAKAI, 1982: 58 (part).

Nec.

Upogebia spinifrons, K. SAKAI, 1984: 209, text-figs. 1-3 (= *U. narutensis* sp. nov.).

Material examined:—

Queensland: Gulf of Carpentaria; 1♂, t.l. 6.3 mm, AM P 24682. Same, about 6 m deep; 1♂, t.l. 5.7 mm; 1♀, t.l. 5.2 mm, AM P 24683. Same, less than 25 m deep; 1♂, t.l. 5.0 mm, AM P 24684.

New South Wales: Port Stephens; 2♀, damaged, AM P 261. Same, about 14 m deep; 1♀, t.l. 7.9 mm, AM P 1544 holotype. Hawkesbury River, near Brooklyn; 1♂, t.l. 15.5 mm, AM P 12943. Port Jackson, about 11 m deep; 1 ovig. ♀, t.l. 8.7 mm, AM P 11448.

Remarks:—Of three females of *U. spinifrons* from Port Stephens, DE MAN (1927) described two as *U. spinifrons*, though one as *U. neglecta*, and firstly noticed that the



Fig. 1. Inner surface of palm of 1st pereopod in *Upogebia spinifrons* (HASWELL, 1882); AM P 12943, male, t.l. 15.5 mm.

first segment of the antennule with a small distoventral spine. I examined the specimens described by POORE & GRIFFIN (1979), and confirmed that the first segment of the antenna with a distoventral spine, the third segment with 3 ventral spines, and the penultimate segment with 4 ventral spines. Otherwise, the present species in males is observed that a genital pore lies at the coxa of the third pereopod; the inner surface of the palm of the first pereopod with 8-9 rows of longitudinal ridges, the lowest row is short in length (Fig. 1).

Upogebia narutensis sp. nov.

(Pl. 1)

Upogebia major (DE HAAN, 1849), MIYAKE, 1982: pl. 31, fig. 5 (not DE HAAN, 1849 but 1841 after Direction 85 on Official List).

Upogebia spinifrons (HASWELL, 1882), K. SAKAI, 1984: 209, figs. 1-3.

Material examined:—

Tokushima Prefecture: From lower tidal zone of muddy sand at Ryuguno-Iso, Ohge-Jima, Naruto, Japan (possibly not from the rocky shore as described in 1984); date unknown; coll. by Prof. M. SHIMOIZUMI; 1♂ (not female), t.l. 96 mm, c.l. 26 mm, BLT 1066 holotype. From lower tidal zone of muddy sand at Tosadamari, Ohge-Jima, Naruto, date 28.4.83, coll. by K. SAKAI; 1♂, t.l. 85 mm, c.l. 25 mm, BLT 1482 paratype. From lower tidal zone of muddy sand with zosteria vegetation, making a burrow 0.40 m deep, at Tosadamari, Ohge-Jima, Naruto; date 14.6.83; coll. by K. SAKAI & T. NAKANO; 1 specimen with *Peregrinamor ohshimai* SHOJI, BLT 1718; 1♂, t.l. 75 mm, c.l. 22 mm, with a *Bopyrus* in the left branchial cavity, BLT 1719 paratype; 1♀, t.l. 88 mm, c.l. 24 mm, BLT 1720 paratype; 1 ovig. ♀, c.l. 22 mm, posterior part of the abdomen torn away. From lower tidal zone of muddy sand with zosteria vegetation, making a burrow 0.40 m deep, in the west of Setocho-Musa, Shimada-Jima, Naruto; date 14.6.83; coll. by K. SAKAI & T. NAKANO; 2 ovig. ♀, t.l. 88 mm, c.l. 24 mm, and t.l. 77 mm, c.l. 22 mm, BLT 1721-1722 paratypes.

Hiroshima Prefecture: From tidal flat in the estuary of Ashida-Gawa, Minoshima, Fukuyama, date 1.3.83-10.8.83; coll. by K. MIZUTA; 5♂, t.l. 50-81 mm; 5♀, t.l. 58-79 mm, BLT 4525-4534 paratypes.

Diagnosis:—Rostrum and lateral frontal lobes hirsute. Rostrum usually with 4 ventral spines; anterolateral margin of carapace with 4-5 sharp spines. Dorsal margin of pereopod 1 carpus bearing a sharp distal spine, usually with another small one in its middle. Uropod endopod with a prominent outer proximal lobe. Males and females with genital pore at pereopod 3 coxa. Total length of males, 96 mm.

Description:—Rostrum broadly triangular, slightly longer than broad at base, and with an apical spine; ventral surface with 2-5, usually 4, spines. Lateral frontal lobe extending to proximal one third of rostrum, apically with a small inner spine and a sharp anterior one; hiatus between the rostrum and lateral frontal lobe a shallow U-shape. Rostrum and its hinder part in the dorsomedian region hirsute and with a median furrow, and lateral frontal lobes also hirsute. Gastric region behind the hirsute area

in the rostrum and dorsomedian region provided with numerous transverse scabrous lines beset with hairs, except in the midline. Anterolateral border of the carapace with 4-5, usually 5, strong spines; anterolateral surface behind the eye with a few spinules; posterior border of the cervical groove with a row of 12-16 spinules.

Eyestalk about half the length of the rostrum, clearly extending beyond the tip of the lateral frontal lobe.

Antennular peduncle unarmed; flagella about as long as the peduncle. Segments 1, 2 and 4 of the antennal peduncle unarmed, but segment 3 with a distoventral spine.

Maxilliped 3 exopod with flagellum; proximal segment extending to distal margin of ischium, and flagellum about one fourth the length of the proximal segment, extending halfway along the merus. Coxa with one proximal spine on the anterior margin; ischium with 3 proximal spines on the inner surface; merus unarmed.

Pereiopods 1 equal, sexually dimorphic.

Male: Coxa unarmed. Ischium with 2-3 strong ventral spines. Merus with 5-8, regularly-spaced strong outer ventral spines, and with one dorsal spine subterminally. Distal margin of carpus with a strong ventral spine, followed outside by 3-4 small sharp spines and inside by 1-2, usually 1 strong spines dorsal margin bears one sharp distal spine, usually with another small one in its middle; upper half of outer surface obliquely with a row of small spines, and its ventral margin carinate with a row of 5 spines, the distal one being largest. Palm about 1.8 times as long as broad; dorsal margin with a row of 11-20 spines; inner proximal margin with one spine near the dorsal angle; inner distal margin with 8-9 spines; outer ventral surface with a longitudinal row of granules in the distal two-thirds, and with the strong spine on the distal margin. Fixed finger large, being half the length of the dactylus, with a large proximal tooth outside. Cutting edge of dactylus with a lower triangular proximal tooth; inner surface scattered proximally with tubercles, and with a row of tubercles along the dorsal row of hairs. Proximal lower half of outer surface with a row of tubercles between two rows of hairs.

Female: Spinulation of carpus almost the same as in males, but outer surface swollen medially and without any spines. Palm slender, with a length of 2.2 times its breadth; dorsal margin with a row of 5-9 spines; and inner distal margin with only 2-3 spinules. Fixed finger small, $1/3$ the length of the dactylus; cutting edge with a vestigial proximal tubercle. Cutting edge of dactylus almost unarmed; inner surface with a carina below the dorsal row of hairs, the proximal part provided with a row of 7-8 tubercles.

Pleopod 1 absent in males, but present in females with 2 articulate segments of equal length.

Telson quadrate with a length of 0.7-0.8 of its width, distinctly shorter than abdominal somite 6, and with a longitudinal groove in the midline. Uropod endopod not

reaching to the posterior margin of the telson; outer lateral margin largely concave between a rounded posterior angle and a noticeable anterior lobe; uropod exopod extending beyond the endopod.

Remarks.—In 1984, I described a single male (not female) specimen obtained from Naruto, Japan, and identified it as *U. spinifrons*, although I noticed that it differed considerably from this species. Since then, I have collected sufficient specimens to compare them adequately with the Australian species and have found that they have the following differences from the latter:

In the present specimens the rostrum is short, and is 1.1 times as long as broad at its base; the 1st segment of the antennule is unarmed; only the 3rd segment of the antenna has a distoventral spine. On the 3rd maxilliped the coxa has one anterior spine, and the basis are unarmed; the ischium has three inner proximal spines, and smooth on the inner mesial margin. On the 1st pereopod in females the ischium has only 2-3 ventral spines; the merus usually has 5-6 outer ventral spines; the carpus has one dorsal sharp spine distally, usually with another in its middle, and in males the inner distal part of the palm unarmed with any longitudinal ridges. In *U. spinifrons* the rostrum is slender, 1.5 times as long as broad; the 1st segment of the antennule is armed at the lower border with a small distal spine; the 1st segment of the antennal peduncle in females is armed with a distal spine, the 3rd one with 3 sharp spines, and the penultimate segment with 4 sharp spines. On the 3rd maxilliped the coxa has three small anterior spines, and on the inner surface the ischium has 3 spines proximally, and a row of short spines on the inner mesial margin. On the 1st pereopod in females the ischium has 4 ventral spines; the merus has 9-10 outer ventral spines; the carpus has 6-7 dorsal spines, and in males the inner distal part of the palm armed with 8-9 rows of longitudinal ridges.

The differences mentioned above are sufficient to distinguish the present species from *U. spinifrons* as a new species.

The male specimen (MNB 12664) from Takao, Taiwan, which I first identified as *U. spinifrons*, is also different from both *U. spinifrons* and the present species in that the inner distal part of the palm of the 1st pereopod has only two translucent longitudinal ridges (K. SAKAI, 1982: 59, figs. 11-13, pl. F, figs. 1, 3).

Besides the present specimens, the specimen, possibly female, collected at a depth of 20 m in Tanabe-Egawa, Kii Peninsula, and described with a color plate by MIYAKE (1982, pl. 31, fig. 5) as *U. major*, also belongs to the present species, because it shows spinulation of the anterolateral margin of the carapace, and an outer proximal lobe in the exopod of the uropod.

Name.—The specific name *narutensis* is based on the name of the location "Naruto city" on the east of the Inland-Sea toward the Kii Strait, Tokushima Prefecture of

Shikoku Island, Japan, where the first specimen of the present species was found.

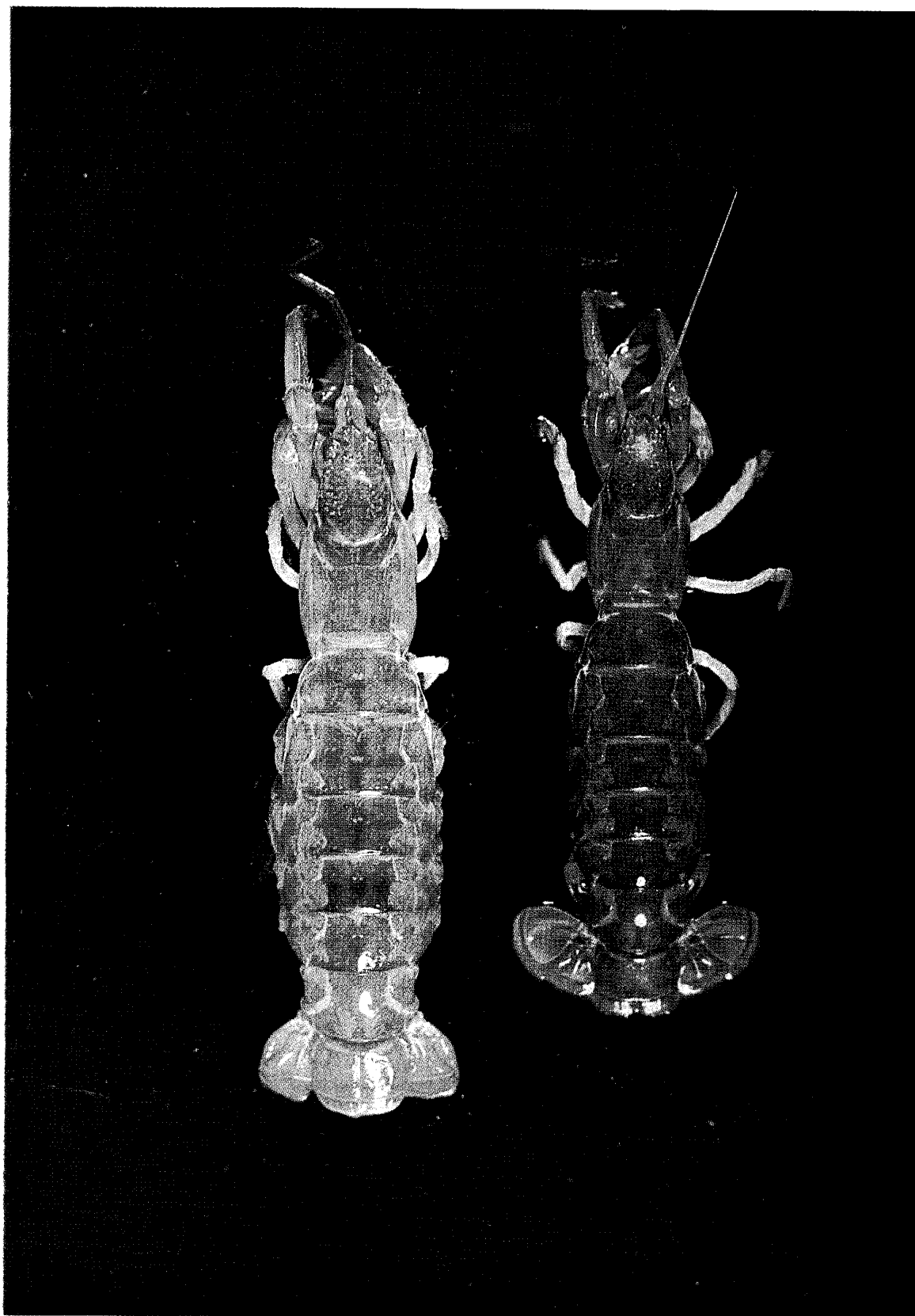
Distribution.—This species has been found in Fukuyama, Hiroshima Prefecture; Naruto, Tokushima Prefecture, and Tanabe-Egawa, Kii Peninsula (MIYAKE, 1982).

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Pl. 1. *Upogebia narutensis* sp. nov. from Setocho-Musa, Shimada-Jima, Naruto, Japan;
2 ovig. ♀, t.l. 88 mm (left) and 77 mm (right), BLT 1721-22 paratypes.